

Fig. 1

ICTB : 354 AGTTGGGCTAGCCAAACTGAC-GCTC-TACCTGTTGGTTTTTGCCCTAGCGGCTCGGGTT 411
 ||| ||| ||| | || ||| | ||| ||| | | ||| |||
 SLR : 366 GTCGGGGTTAGCGAAATTAACAGCTAATTTATGCTGTTTCTAC--TGCGGCGAGGTTA 423

ICTB : 412 CTCCGCAATCCCCGTCTGC-GATCGCTGCTGTTCTCGGTCGTCGTGATCACATCGCTTTT 470
 | | | | | | | | | | | | | | | | | | | | | |
 SLR : 424 TTGCAAAACAAACAATGGTTGAAC-CGGTTAGTAACCGTTGTTTACTGGTAGGGCTATT 482

ICTB : 471 TGTCAGTGTCTACGGCCTCAACCAATGGATCTACGGCGTTGAAGAGCTGGCGACTTGGGT 530
 || | | | | | | | | | | | | | | | | | | | | |
 SLR : 483 GGTGGGGAGTTACGGTCTGCGACAACAGGTGGACGGGGTAGAACAGTTAGCCACTTGGAA 542

ICTB : 531 GGATCGCAACTCGGTTGCCGACTTCACCTCACGGGTTTACAGCTATCTGGGCAACCCCAA 590
 | | | | | | | | | | | | | | | | | | | | | |
 SLR : 543 TGACCCACCTCTACCTTGCCCAAGGCCACTAGGGTATATAGCTTTTATAGTAATCCCAA 602

ICTB : 591 CCTGCTGGCTGCTTATCTGGTGCCGACGACTGCCTTTT-CTGCAGCAGCGATCGGGGTGT 649
 || ||| ||| ||| ||| ||| ||| | || | || | || | ||| |
 SLR : 603 TCTCTTGGCGGCTTACCTGGTGCCCATGACGGGTTTGAGCTTGAGT-GCCCTGGTGGTAT 661

ICTB : 650 GGCGCGGCTGGCTCCCCAAGCTGCTGGCGATCG-CTGCGACAGGTGCGAGCAGCTTATGT 708
 |||| | ||| |||| |||| || | | | | | | | | | |
 SLR : 662 GGCGACGGTGGTGGCCCAAAGCTGCTGG-GAGCAACCATGGTGATTGTTAACCTACTCTGT 720

ICTB : 709 CTGATCCTCACCTACAGTCGCGGTGGCTGGCTGGGTTTTGTGCGCCATGATTTTGTCTGG 768
 || | | | | | | | | | | | | | | | | | | | | |
 SLR : 721 CTCTTTTTTACCCAGAGCCGGGGCGGTTGGCTAGCAGTGCTGGCCCTGGGAGCTACCTTC 780

ICTB : 769 GCGTTATTAGGGCTCTACTGGTTTCAACCCCGTCTACCCGCACCCTGGCGACGCTGGCTA 828
 | | | | | | | | | | | | | | | | | | | | | |
 SLR : 781 CTGGCCCTTTGTTACTTCTGGTGGTTACCCCAATTACCCAAATTTTGGCAACGGTGGTCT 840

ICTB : 829 TTCCCAGTCGTATTGGGTGGACTAGTCGCGGTGCTCTT-GGTGGCGGTGCTTGGACT--- 884
 || || | | | | | | | | | | | | | | | | | | | |
 SLR : 841 TTGCCCCCTGGC----GATCGCC--GTGGCGGTTATATTAGGTGGGGGAGCGTTGATTGCG 894

ICTB : 885 -TG-AGCCGTTGCGCGTGCGCGTGTGAGCATCTTTGTGGGGCGTGAAGACAGCAGCAAC 942
 || | ||| | || | | | | | | | | | | | | | | | |
 SLR : 895 GTGGAACCGATTGCACTCAGGGCCATGAGCATTTTTGCTGGGGCGGAAGACAGCAGTAAT 954

Fig. 2b

ICTB : 943 AACTTCCGGATCAATGTCTGGCTGGCGGTGCTGCAGATGATTCAAGATCGGCCTTGGCTG 1002
 || ||||| ||||| || | || | |||| | || || || |
 SLR : 955 AATTTCCGCATCAATGTTTGGGAAGGGGTAAAAGCCATGATCCGAGCCCGCCCTATCATT 1014

ICTB : 1003 GGCATCGGCCCCGGCAATACCGCCTTTAACCTGGTTTATCCCTCTATCAACAGGCGCGC 1062
 ||||| ||||| || || ||||| ||||| ||||| |||| | || ||||
 SLR : 1015 GGCATTGGCCCAGGTAACGAAGCCTTTAACCAAATTTATCCTTACTATATGCGGCCCCGC 1074

ICTB : 1063 TTTACGGCGTTGAGCGCCTACTCCGTCCCGCTGGAAGTCGCGGTTGAGGGCGGACTACTG 1122
 || || || ||||| ||||| || | || || | || || || || || ||
 SLR : 1075 TTCACCGCCCTGAGTGCCATTCCATTTACCTAGAAATTTGGTGGAACGGGTGTAGTT 1134

ICTB : 1123 GGCTTGA-CGGCCTTCGCTTGGCTGCT-GCTGGTCACGGCGGTGACGGCGGTGCGGCAGG 1180
 || || | || | || ||||| || || | || || || || || || || ||
 SLR : 1135 GGTTTTACCTGTATGCTC-TGGCTGTTGGCCGTTACCCTAGGCAAAGGC-GTAGAACTGG 1192

ICTB : 1181 TGAGCCGACTGCGGCGGATCGCAATCCCC--AAGCCTTTTGGTTGATGGCTAGCTTGGC 1238
 | | || || || || || || || || || || || || || || || || || ||
 SLR : 1193 TTAAACG-CTGTCGC-CAAACCTCGCCCCGGAAGGCATCTGGATTATGGGGGCTTTAGC 1250

ICTB : 1239 CGGTTTGGCAGGAATGCTGGGTACGGTCTGTTTGATACCGTGCTCTATCGACCGGAAGC 1298
 | | | || || || || || || || || || || || || || || || || ||
 SLR : 1251 GGCGATCATCGGTTTGTGGTCCACGGCATGGTAGATACAGTCTGGTACCGTCCCCCGGT 1310

ICTB : 1299 CAGTACGCTCTGGTGGCTCTGTATTGG--AGCGATCGCGAGTTTCTGG--CAGC-CCCAA 1353
 || || | ||||| | || || | | || || || || || || || || || ||
 SLR : 1311 GAGCACTTTGTGGTGG-TTGCTAGTGGCCATTG-TTGCTAGTCAGTGGGCCAGCGCCAG 1368

ICTB : 1354 CCTTCCAAGCAACTCCCTCCAGAAGCCGAGCATTTCAGACGAA 1395
 | | | | | |||| || || || || || || || || || || || || || ||
 SLR : 1369 GCCCGTTTGGAGGCCAGTAAAGAA---GAAAATGAGGACAAA 1407

Fig. 2c

ICTB : 1 MTVWQTLTFAHYQPQQWGHSSFLHRLFGSLRAWRASSQLLVWSEALGGFLLAVVYGSAPF 60
 +++W++L F + PQ+WG S LHRL G ++W +S L EALG L+A+++ +APF
 SLR : 5 ISIWRSMLFGGFSPQEWGRGSVLHRLVGVGQSWIQASVLWPHFEALGTALVAIIIFIAAPF 64

ICTB : 61 VPSSALGLGLAAIAAYWALLSLTDIDLQATPIHVLVLLYWGVDALATGLSPVRAAALVG 120
 ++ LG+ + A+WALL+ D + TPIH LV YW + A+A G SPV+ AA G
 SLR : 65 TSTTMLGIFMLLCGAFWALLTFADQPGKGLTPIHVLVFAYWCISAIAVGFSPVKMAAASG 124

ICTB : 121 LAKLTLYLLVFALAARVLNPNRLRSLLFSVVVITSLEFVSUYGLNQWIYGVVEELATWVDRN 180
 LAKLT L +F LAAR+L+N + + L +VV++ L V YGL Q + GVE+LATW D
 SLR : 125 LAKLTANLCLFLLAARLLQNKQWLNRLVTVVLLVGLLVGSYGLRQQVDGVEQLATWNDPT 184

ICTB : 181 SVADFTSRVYSYLGPNPALLAAYLVPTTAFSAAAIGVWRGWLPKLLAIAATGASSLCLILT 240
 S +RVYS+LGPNPALLAAYLVP T S +A+ VWR W PKLL + LCL T
 SLR : 185 STLAQATRVYSFLGNPNLLAAYLVPMTGLSLSALVVWRRWWPKLLGATMVIVNLLCLFFT 244

ICTB : 241 YSRGGWLGFVAMIFVWALLGLYWFQPRLPAPWRRWLFVVLGGLVAVLLVAVLGLEPLRV 300
 SRGGWL +A+ + L +W+ P+LP W+RW P+ + V + A++ +EP+R+
 SLR : 245 QSRGGWLAVLALGATFLALCYFWWLPQLPKFWQRWSLPLAIAVAVILGGGALIAVEPIRL 304

ICTB : 301 RVLSIFVGREDDSSNNFRINVLAVLQMIQDRPWLIGIGPGNTAFNLVYPLYQQARFTALSA 360
 R +SIF GREDDSSNNFRINW V MI+ RP +GIGPGN AFN +YP Y + RFTALSA
 SLR : 305 RAMSIFAGREDDSSNNFRINWEGVKAMIRARPIIGIGPGNEAFNQIYPYMRPRFTALSA 364

ICTB : 361 YSVPLEVAVEGGLLGLTAFAWLLLVTAVTAVRQVSRLRRDRNPQAFWLMAIAGLAGMLG 420
 YS+ LE+ VE G++G T WLL VT V V R R+ P+ W+M +LA + G+L
 SLR : 365 YSIYLEILVETGVVGFTCMLWLLAVTLGKGVELVKRCRQTLAPEGIWIMGALAAIIGLLV 424

ICTB : 421 HGLFDTVLYRPEASTLWWLCIGAIASFQWQPSKQLPPEAEHSDEKM 467
 HG+ DTV YRP STLWWL + +AS W ++ + E+ D+ +
 SLR : 425 HGMVDTVWYRPPVSTLWWLLVAIVASQWASAQARLEASKEENEDKPL 471

Fig. 3

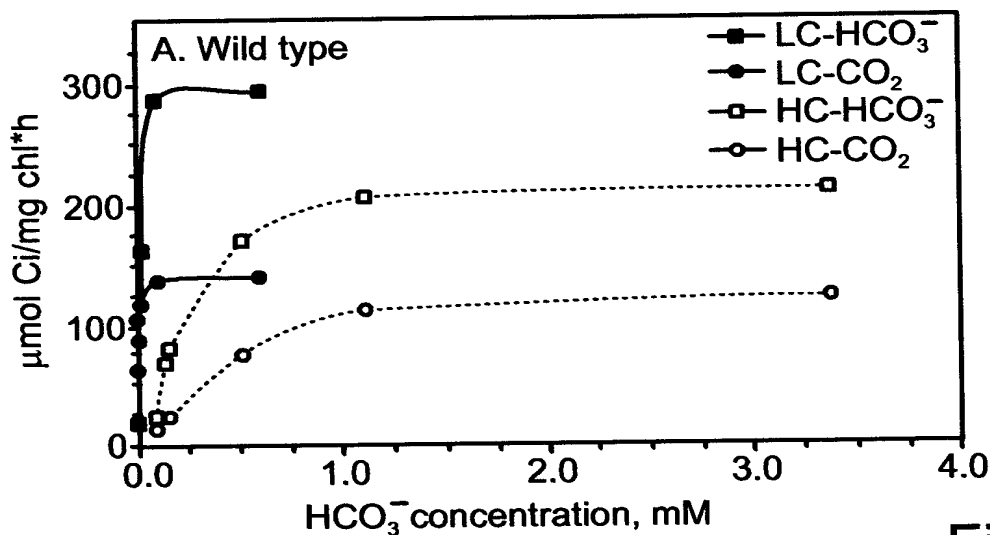


Fig. 4a

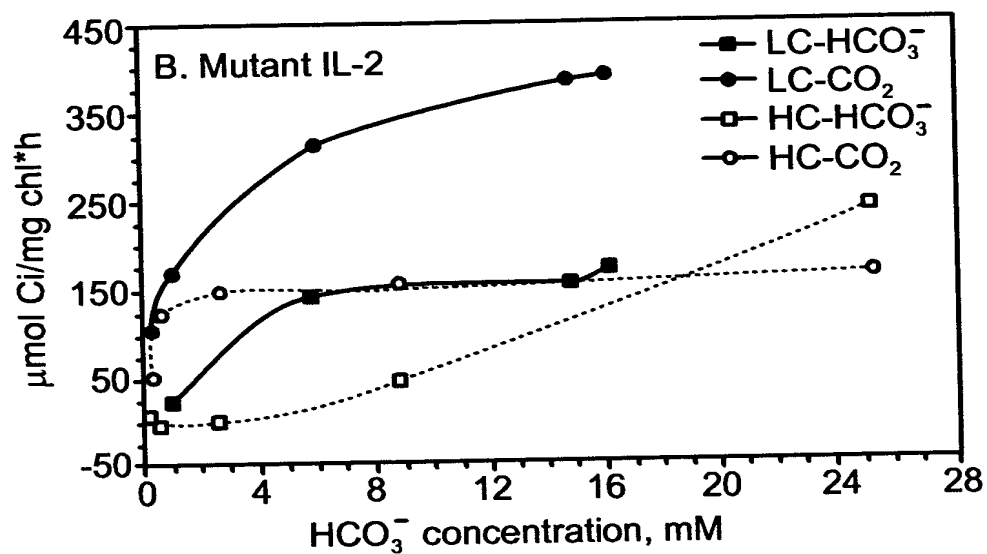


Fig. 4b

Wild type	GGGCT-AGCCGCGATCGCGGCCTATTGGGCCC
IL-2 <i>Apa</i> I side	GGGCT-AG--G-GATCGC-GCCTATTGGGCCC
IL-2 <i>Bam</i> HI side	GGGCTCA-----GATCGC-GCCTATTGGGCCC
IctB	G L A A I A A Y W A L

Fig. 5

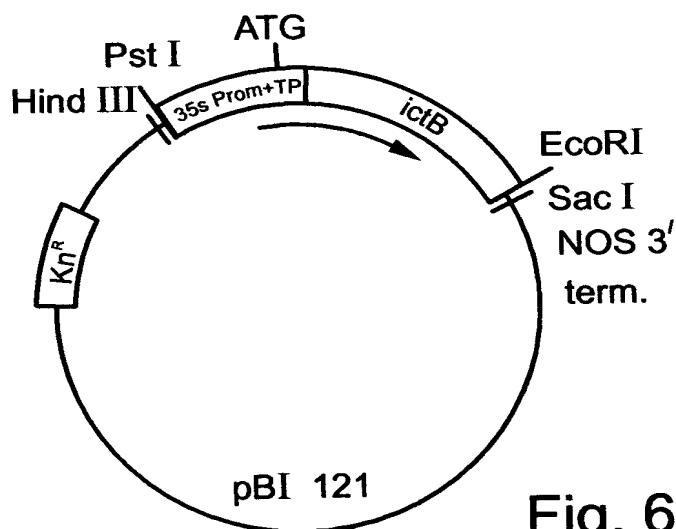


Fig. 6

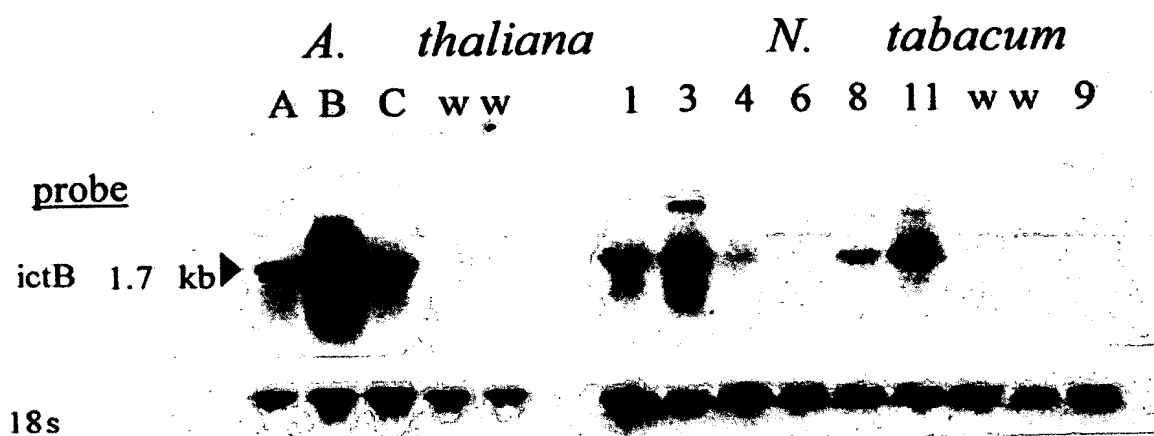


Fig. 7

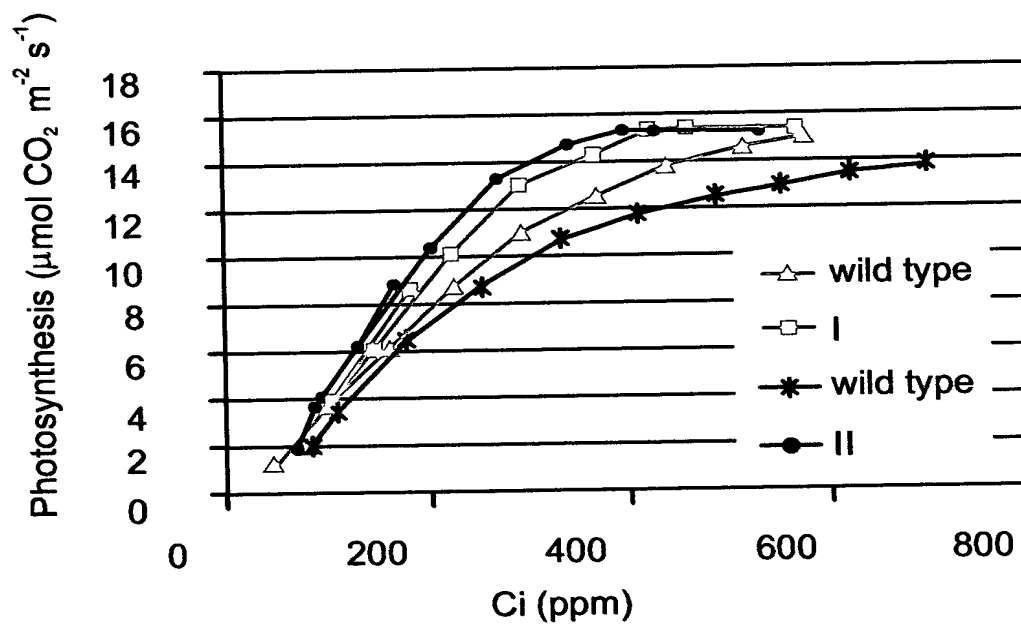


Fig. 8

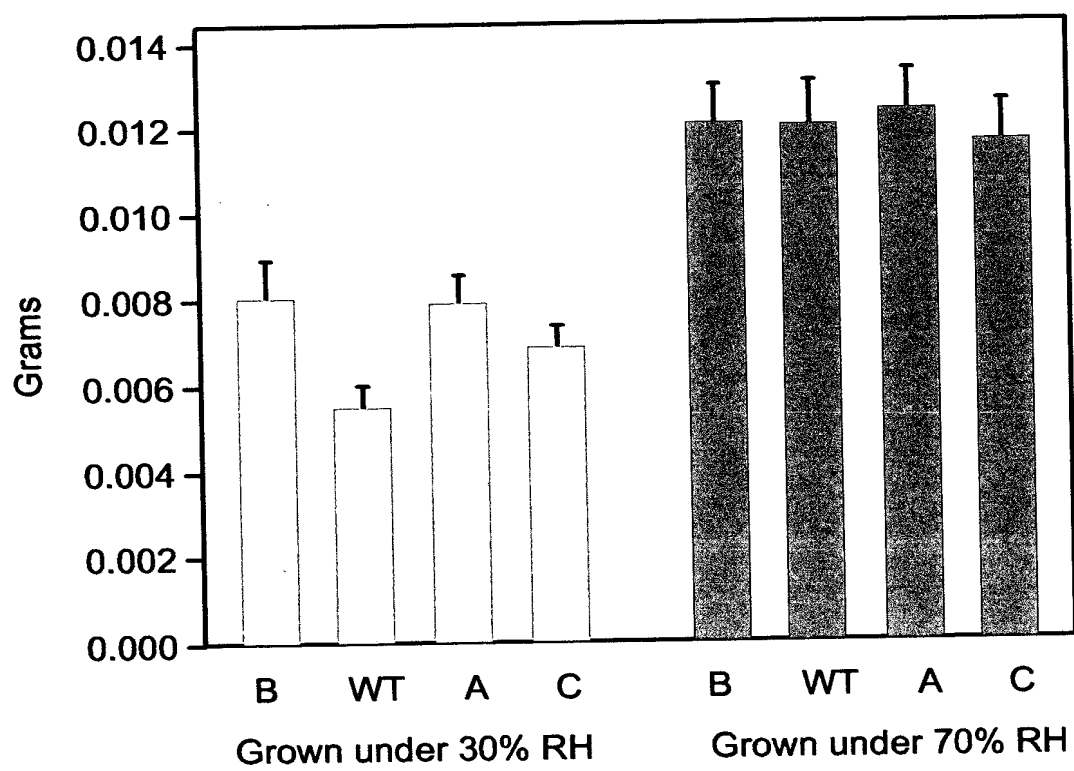


Fig. 9

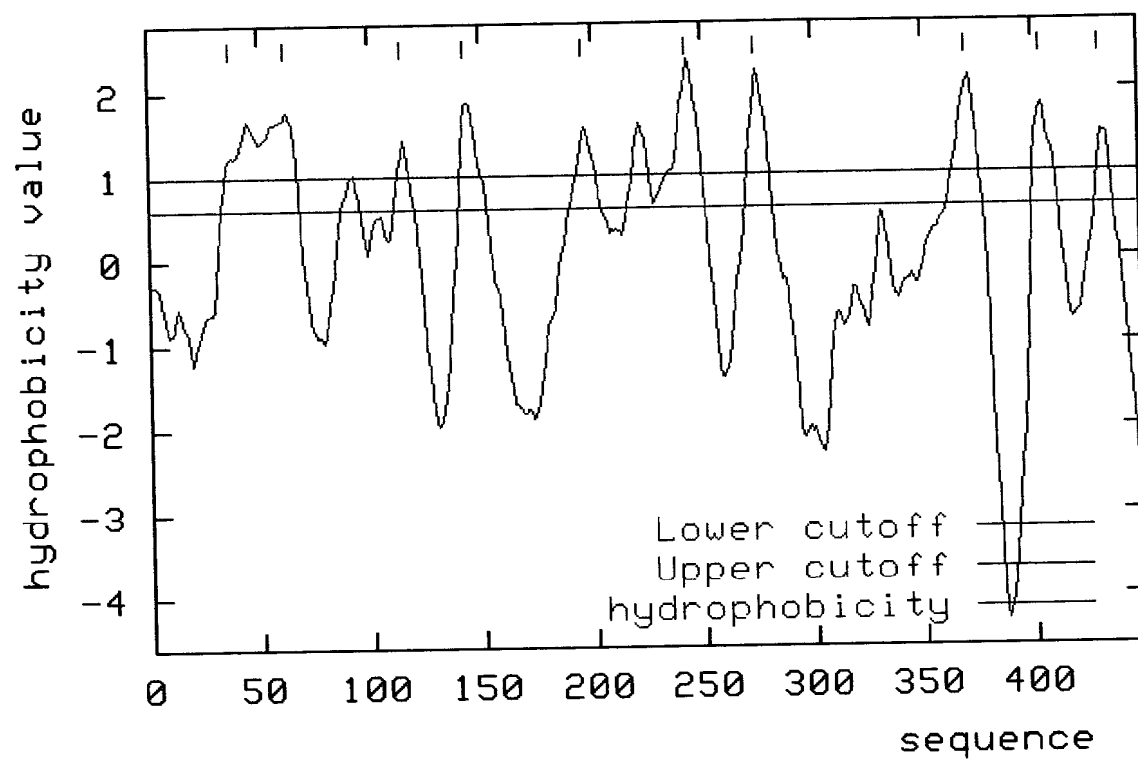


Fig. 10a

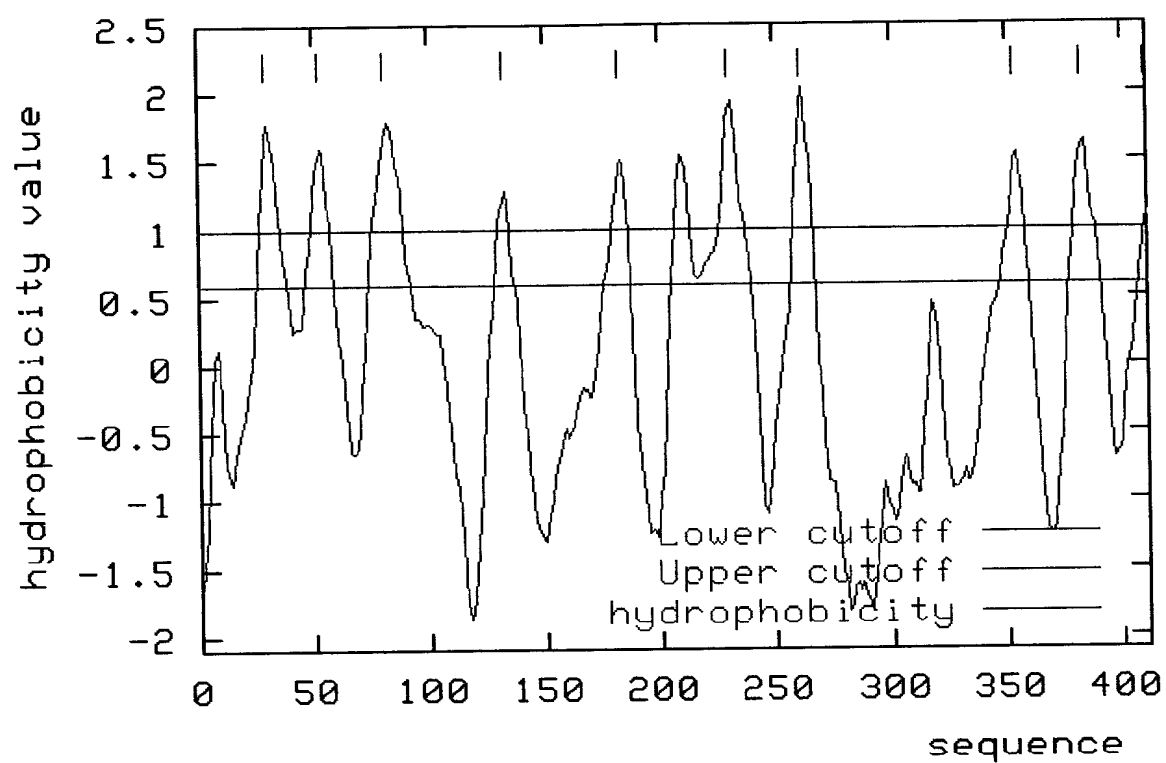


Fig. 10b

legend: * =Identity; : =strong similarity; . =similarity

	10	20	30	40	50	60
Anabaena	---MNLVWQRF	TLSSLPK--	QFLATSYLHR	FLVGLLSSWR	QTSFLLQWGD	MIAAALLSL
Nostoc	MFFMNLVWQ	LFTLSSLPK	--EYLATSYV	HRSVLGGLSS	WRQTSVLIQW	GDAIAAVLLSS
Trichodesmium	---MNSVWKK	LTLTNLSFSD	SEWLNASYLY	GLLNGSLYN	WRRGSWLMQ	WGEPLGFVLLAI
SLR1515	MVSPISIWRS	LMFGGFSPQ	--EWGRGSVL	HR-LVGWGQ	SWIQASVLW	PHFEALGTALVAI
IctB	----MTVWQ	TLTFAHYQPQ	--QWGHSSFL	HR-LFGSLR	AWRASSQLL	VWSEALGGFLLAV
Thermosyn	-----MDV	LLRRLDVEG	--WRSHSGV	GR-LLGGLQ	GWQEKSWL	GRWLP
Prochloroco	-----MPK	TAAAPQ	-----P	LLLRWQGH	IPSSSEAMQ	MRLQWIAGLLMM
Synechococcus	-----MAD	ATDQRS	-----I	PLLRWQGC	LTPPTASVQ	QRLELLSGVVLML
			*		:	:: ::
	70	80	90	100	110	120
Anabaena	IYVLA	PFVSS	TLVGV	LLIACV	GFWLL	LTLSDEPSSN
Nostoc	IYALAP	FASSTL	VGLLLV	ACVGF	WLLLT	LSDEVTPAN
Trichodesmium	VFTLA	PFVNTT	LIGFLL	ASAGF	WLLK	VSDN----
SLR1515	I FIAA	PFTST	TMLGI	FMLLC	GAFWAL	LT
IctB	VYGSAP	FVPSSA	LGLGLA	AIAAY	WALLS	LT
Thermosyn	VLVLAP	LMPSGM	IGMLLA	AGSGF	WLLW	TLAGE---
Prochloroco	LLATLP	MLTRT	GLGLT	ILAA	AGALW	IIGCVTP---
Synechococcus	LLGSLP	FVSRSG	LGLELA	AAGLL	WLLW	SLITP----
	:	*:	:*:	:	:	:: :: : : ..
	130	140	150	160	170	180
Anabaena	LSPVK	KAA	LTDL	LTLY	LLLFAL	CARVLR-SPRLRS
Nostoc	LSPVK	KAA	LN	DLGT	LTLY	LLLFALC
Trichodesmium	ISPAK	TAA	FSGW	KLTLY	LLLFAS	GSIVLR-SPRLRS
SLR1515	FSPVK	MAA	ASGL	AKLTAN	LCLFL	LAARLLQ-NKQW
IctB	LSPV	RAA	ALVGL	AKLTLY	LLVFAL	AARVLR-NPRLRS
Thermosyn	LSPV	PRAA	MVGL	GKLTLY	LLFFAL	AERVMR-NERWRS
Prochloroco	FSPV	PLAA	AKGLIK	LISYLG	VYALMR	QLLATSSDWW
Synechococcus	FSPV	PIAA	AKGLL	KLTSYLG	VYALMR	TLLERQIVWWDR
	:*	:*	:	:*	:	: : : : * : : *
	190	200	210	220	230	240
Anabaena	GAPPLA	TWVDPE	STLSKT	TRVYSY	LGNPNLL	AGYLVP
Nostoc	GATALA	TWVDPE	SPLSKT	TRVYSY	LGNPNLL	AGYLLP
Trichodesmium	KVEPLA	TWNDPT	SAQAGAT	RVYSY	LGNPNLL	GGYLLP
SLR1515	GVEQLA	TWNDPT	STLAQAT	RVYSY	FLGNPNLL	AAYLVP
IctB	GVEELA	TWVDRN	SVADFT	SRVYSY	LGNPNLL	AAYLVP
Thermosyn	GAEPLA	TWTDPE	SALANV	TRVYSY	FLGNPNLL	AGYLLP
Prochloroco	PAEEMA	HWADPN	SVAGT	VRIYGP	LGNPNLL	AGYLLP
Synechococcus	STDELA	GWADPN	SVSAGT	IRIYGP	LGNPNLL	AGYLLP
	:	:*	:*	:	:*	:* : : : : *

Fig. 11a

Fig. 11b

Fig. 11

Fig. 11a

	250	260	270	280	290	300
Anabaena	MLFVNTACLI	FTYSRGGWIGLV	VAVLGATALLVD	WWSVQMP	PFWRTWSL	PILLGGLIGVL
Nostoc	MLIVNTACLI	LTFSRGGWIGLV	VAVLAVMALLV	FWKSVEMPP	FWRTWSL	PIVLGGLIGIL
Trichodesmium	ILLVSCACLR	YTGSRGSWIGF	LALMFAMILLM	WYWRSYMP	SFWQIWSL	PIAVGSFAGLL
SLR1515	MVIVNLLCL	FFTQSRGGWLA	VLALGATFLAL	CYFWWLPQ	LKFWQRWSL	PLAIAVAVILG
IctB	ATGASSLC	LIITYSRGGW	LGFVAMIFV	WALLGLYWF	QPRLPAPW	RRWLFPPVVLGGLVAVL
Thermosyn	MLGMNAAS	LIITFSRGGW	LGLVAATIAG	VVLGIWFW	PRLPQWRR	RGVPTMGGLAIALC
Prochloroco	ALGLGITAT	LFSFSRGGW	LGMLSALAVI	LVLILLRST	SHWPLVWR	RLLPLIVIVLGTAML
Synechococcus	TALLAGSAT	VFTYSRGGW	LGLLALAGML	LILLRTTAH	WPPLWRRL	LPLAALLIAGIAL
	.	:	***.*:..	*	*	*
	310	320	330	340	350	360
Anabaena	LIAVLFVEP	VRFRVLSIFAD	RQDSSNNFR	RNVWDAVFEM	IRDRPIIGI	GPGHNSFNKVYP
Nostoc	LLAVIFVEP	VRFRVLSIFAD	RQDSSNNFR	RNVWDAVFEM	IRDRPIFGI	GPGHNSFNKVYP
Trichodesmium	ILAVVLEP	LRVLSVFAGR	QDSSNNFR	MNVWMSVFD	MI RDRPIL	GIGPGNDVFNKIYP
SLR1515	GGALIAVE	PIRLRAMSIF	AGREDSSNN	FRINVWEGV	KAMIRARP	IIIGIGPGNEAFNQIYP
IctB	LVAVLGLE	PLRVVLSIF	VGREDSSNN	FRINVWLA	VLQMIQDR	PWLIGIGPGNTAFNLVYP
Thermosyn	MGTIVSV	PPLRERAAS	IFVARGDSS	NNFRINVW	MAVQOMI	WARPWLIGIGPGNVAFNQIYP
Prochloroco	VIAATQIE	PIRTRITSLI	AGRSDSSNN	FRINVWLS	SLEMIQAR	PWLIGIGPGNAAFNRIYP
Synechococcus	ALAITQLD	PIRTRVLSL	VAGRGDSS	NNFRINVW	LAAIEMVQ	DRPWLIGIGPGNAAFNSIYP
	:	:	*:* * *:.. *	***** *	*	:* ** :*****: ** :*
	370	380	390	400	410	420
Anabaena	LYQR-PRYS	SALSAYSIFLE	VAVEMGFVGL	ACFLWLIIV	TINTAFVQL	RQLRQSANVQGF
Nostoc	LYQH-PRYT	SALSAYSILFE	VTVETGFVGL	ACFLWLIIV	TFTALLQVR	RLRLRSVEGF
Trichodesmium	LYQR-PRYS	ALSSYSVPLE	IVVETGFI	GLTAFWL	LLLVTFNQ	GVQLKRLRDADNPQGYW
SLR1515	YYMR-PRFT	SALSAYSIYLE	ILVETGVV	GFTCMLW	LAVTLGKG	VELVKRCRQTLAPEGIW
IctB	LYQQ-ARFT	SALSAYSVPLE	VAVEGGLL	GLTAFAW	LLLVTA	VTAVRQVSRLLRRDRNPQAFW
Thermosyn	LYQVNVRF	TALGAYSIFLE	ILVEVGFI	GFVFLW	LAVLGD	RARRCFEELRATGSPQGF
Prochloroco	LFQQ-PKF	NALSAYSVPLE	ILVETGLA	GLMASL	ALVITGM	RKGLAGLNSNHPL----
Synechococcus	LYQQ-PKF	DALSAYSVPLE	ILVETGIP	GLLACL	GLLSSI	QRGLR-IHGQQ-----GLI
	:	:	*:* ** :*: ** *	*	:	:
	430	440	450	460	470	480
Anabaena	LVGALATL	LGMIAHGTV	DTIWF	RPEVNTL	WWLMVALI	ASYWTPLSANQCQELNLFKEEPT
Nostoc	LIGAIAILL	LGMIAHGTV	DTVWYR	PEVNTL	WWLIVALI	ASYWTPLTQNTQNPNS---NPEPA
Trichodesmium	LIGAIAAM	VGLIGHGL	VDTVWYR	PQVNTI	WWLMVAII	ASYSSQQGVRSRE-----
SLR1515	IMGALAAI	IGLLVHGM	VDTVWYR	PPVSTL	WWLLVAI	VASQWASQARLEASKEENEDKPL
IctB	LMASLAGL	AGMLGHGL	FDTVLYR	PEASTL	WWLCIGA	IASFWQPQPSKQLPPEAEHSDEKM
Thermosyn	LMGTIAAM	IGMLTHGL	VDTIWF	RPEVATL	WWLMVAI	VASFTPFQSKTANGTFSNRDPEP-
Prochloroco	ALASLAAI	AGLAVHG	ITDTI	FFRPEVQ	LVGWFC	LATLAQTQPEQKQLQOTE-----
Synechococcus	AIGSLAAI	AGLLTQGI	TDTI	FFRPEVQ	LIGWFA	LASLGATWLRD-----
	:.:.:	*:	:*	**:	:**	. :*: :. :.
Anabaena	SN-					
Nostoc	VN-					
Trichodesmium	---					
SLR1515	LAS					
IctB	---					
Thermosyn	---					
Prochloroco	---					
Synechococcus	---					

Fig. 11b

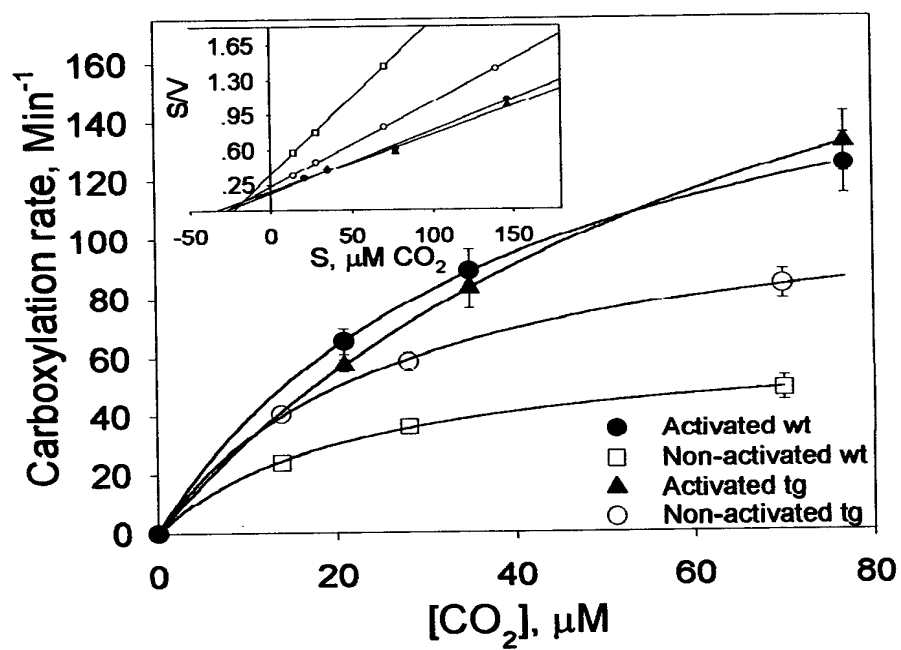


Fig. 12